

DOCUMENT RESUME

ED 242 992

CE 038 872

AUTHOR Zaharevitz, Walter
TITLE Government, Including: Air Traffic Controllers, Aviation Safety Inspectors, Airspace Systems Inspection Pilots, Accident Investigators, Electronics Technicians, Engineers, Meteorologists. Aviation Careers Series. Revised.
INSTITUTION Federal Aviation Administration (DOT). Washington, DC. Office of Aviation Policy.
REPORT NO GA-300-128
PUB DATE 79
NOTE 36p.; For related documents, see CE 038 867-873.
PUB TYPE Guides - Non-Classroom Use (055)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Aerospace Industry; Aircraft Pilots; Airports; *Air Transportation; Aviation Mechanics; Aviation Technology; Career Development; *Career Education; Employment Opportunities; Employment Projections; Employment Qualifications; Engineers; *Federal Government; *Government Employees; Local Government; *Occupational Information; Postsecondary Education; Public Agencies; Safety; Secondary Education; State Government; Wages
IDENTIFIERS *Air Traffic Controllers; Aviation Occupations; Federal Aviation Administration

ABSTRACT

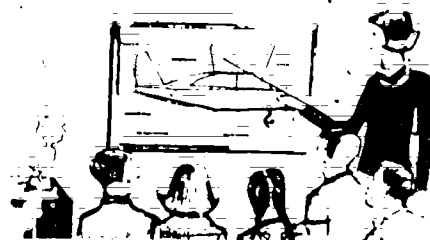
This booklet, one in a series on aviation careers, outlines the variety of careers in aviation available in federal, state, and local governmental agencies. The first part of the booklet provides general information about civil aviation careers with the federal government, including pay scales, job classifications, and working conditions. Following is a detailed summary of these nine job categories and their subcategories: air traffic controllers, electronic technicians, aviation safety inspectors, airspace system inspection pilots, flight test pilots, mechanics, engineers, engineering aids or technicians, and other professional employees. Most of the career opportunities described are available through the Federal Aviation Administration, the Department of Defense, or the National Aeronautics and Space Administration. For each job classification, information on the nature of the work, working conditions, where the jobs are, qualifications for entry, wages, opportunities for training, and outlook for the future is provided. The final sections of the guide discuss career opportunities at other federal agencies and state aviation departments and the outlook for aviation opportunities in government. (KC)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

ED242992

AVIATION EDUCATION

DEPARTMENT OF TRANSPORTATION/FEDERAL AVIATION ADMINISTRATION
OFFICE OF AVIATION POLICY/WASHINGTON, D.C. 20591



Aviation Careers Series

GOVERNMENT

Including:

Air Traffic Controllers
Aviation Safety Inspectors
Airspace Systems Inspection Pilots
Accident Investigators
Electronics Technicians
Engineers
Meteorologists

by

Walter Zaharevitz

GA-300-128

(Revised 1979)

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

✓ This document has been reproduced as
received from the person or organization
originating it.

Minor changes have been made to improve
reproduction quality.

• Points of view or opinions stated in this docu-
ment do not necessarily represent official NE
position or policy.

GENERAL INFORMATION

A major source of aviation careers lies in jobs with federal, state and local government agencies.

Civil aviation careers in the Federal Government for men and women are found within the Department of Transportation, Federal Aviation Administration, the Civil Aeronautics Board, and a growing number of other federal departments and agencies. All of these aviation jobs come under the Federal Civil Service, and wage scales are determined by Congress, which, from time to time, adjusts the pay levels to bring them in line with comparable jobs in private business and industry. Salaries for Federal Civil Service employees are established into two chief categories: General Schedule (for those employees who perform administrative, managerial, technical, clerical and professional jobs and who are paid on an annual basis) and the Federal Wage System (for those employees who perform jobs associated with the trades and crafts and who are paid wages on an hourly basis).

Most Federal Civil Service employees in the aviation field are covered by the General Schedule and their salaries vary according to their grade level (GS-1 through GS-18). Within each of the grades provided in the General Schedule, provision is made for periodic pay increases based on an acceptable level of performance. With an acceptable level of competence, the waiting period of advancement to steps two, three and four is one year; steps five, six and seven is two years; steps eight, nine and ten is three years.

Forty hours constitutes a normal work-week. Additional payment (called premium pay) is made for shift work involving duty between 6 o'clock p.m. and 6 o'clock a.m. and for work during Sundays and holidays. Merit promotions are awarded under provisions of a Civil Service approved merit promotion plan.

Most federal employees under Civil Service participate in a liberal retirement plan. Employees earn from 13 to 26 days of paid annual vacation, depending upon the length of service, and 13 days of paid sick leave each year. Health insurance, low-cost group life insurance, credit union service, and compensation and medical care for injury on the job are other benefits offered.

The largest number of aviation jobs found within the Federal Government (outside the Department of Defense) is with the Federal Aviation Administration (FAA) of the Department of Transportation. The FAA, with a total of approximately 56,000 employees, is charged with the administration and enforcement of all federal air regulations to insure the safety of air transportation. The FAA also promotes, guides and assists the development of a national system of civil airports. The FAA provides pilots with flight information and air traffic control services from flight planning to landing.

AIR TRAFFIC CONTROL SPECIALIST (FAA)

Requirements To Enter the Job: Applicants must have the following quantity and kind of experience:

<u>Grade</u>	<u>General Experience (Years)</u>	<u>Specialized Experience (Years)</u>	<u>Total Experience (Years)</u>
GS-4	2	0	2
GS-5	3	0	3
GS-7	3	1	4
GS-9	3	2	5
GS-10	3	2½	5½
GS-11/15	3	3	6

General Experience: Progressively responsible experience in administrative, technical or other work which demonstrates potential for learning and performing air traffic control work.

Specialized Experience: Experience in a military or civilian air traffic facility which demonstrated possession of the knowledges, skills and abilities required to perform the level of work of the specialization for which application is made.

Educational and Other Substitutions for Experience:

- GS-4: Study completed in an educational institution above the high school level may be substituted on the basis of one year of study for one year of experience.
- GS-5: Successful completion of a four-year college course leading to a bachelor's degree may be substituted in full for the experience required at GS-5.
- GS-7: Successful completion of one year of graduate study leading to a masters degree may be substituted in full for the experience required at GS-7.
- GS-7: Applicants who have passed the written test qualify for the experience requirements for grade GS-7 if they:

Hold or have held an appropriate facility rating and have actively controlled air traffic in civilian or military air traffic control terminals or centers;

Hold or have held an FAA certificate as a dispatcher for an air carrier;

Hold or have held an instrument pilot certificate;

Hold or have held an FAA certificate as a navigator or have been fully qualified as a Navigator/Bombardier in the Armed Forces;

Have 350 hours of flight time as a co-pilot or higher and hold or have held a private pilot certificate or equivalent Armed Forces rating;

Have served as a rated Aerospace Defense Command Intercept Director;

Meet the requirements for GS-5 and in addition pass the written test with a higher score;

Certificate and Rating Requirements: Air traffic control specialists in all specializations are required to possess or obtain a valid Air Traffic Control Specialist Certificate and/or Control Tower Operator Certificate, if appropriate. These certificates require demonstrating knowledge of basic meteorology, basic air navigation, standard air traffic control and communications procedures, the types and uses of aid to air navigation, and regulations governing air traffic. In addition, each air traffic control specialist must possess or obtain a rating for the facility to which assigned. This facility rating requires demonstration of a knowledge of the kind and location of radio aids to air navigation, the terrain, the landmarks, the communications systems and circuits, and the procedures peculiar to the area covered by the facility. All required certificates and ratings must be obtained, if not already held, within uniformly applicable time limits established by agency management.

Physical Requirements: Candidates must be able to pass a physical examination (including normal color vision). Air traffic control specialists are required to requalify in a physical examination given annually.

Written Test and Interview: Applicants must also pass a comprehensive written test and complete a personal interview during which alertness, decisiveness, diction, poise and conciseness of speech are evaluated.

Both men and women are employed as air traffic controllers. Few occupations make more rigid physical and mental demands upon employees than that of air traffic controllers. Because studies show that the unique skills necessary for success as a controller diminish with age, a maximum age of 30 has been established, without exception, for entry into an FAA tower or center controller position.

Air Traffic Control Specialist at FAA Airport Traffic Control Tower

Nature of the Work: The air traffic control specialists at FAA airport traffic control towers direct air traffic so it flows smoothly and efficiently. The controllers give pilots taxiing and takeoff instructions, air traffic clearances, and advice based on information received from the National Weather Service, air route traffic control centers, aircraft pilots, and other sources. They transfer control of aircraft on instrument

flights to the Air Route Traffic Control Center (ARTCC) controller when the aircraft leaves their airspace and receives from the ARTCC control of aircraft on instrument flights flying their airspace. They must be able to recall quickly registration numbers of aircraft under their control, the aircraft types and speeds, positions in the air, and also the location of navigational aids in the area.

Working Conditions: The controllers normally work a forty-hour week in FAA control towers at airports using radio, radar, electronic computers, telephone, traffic control light, and other devices for communication. Shift work is necessary. Each controller is responsible, at separate times, for: giving taxiing instructions to aircraft on the ground, take-off instructions and air traffic clearances, and directing landings of incoming planes. These individual duties are rotated among the staff about every two hours at busy locations. At busy times, controllers must work rapidly, and mental demands increase as traffic mounts, especially when poor flying conditions occur and traffic stacks up. Brief rest periods provide some relief, but are not always possible. Radar controllers usually work in semi-darkness.

Where the Jobs Are: FAA employs over 11,000 controllers at airport traffic control towers located at 428 airports scattered throughout the nation, mostly in areas having moderate to heavy air traffic. A few towers are located outside the contiguous United States in Alaska, Hawaii, Puerto Rico, the Virgin Islands, and American Samoa. Employees are able to relocate to meet staffing requirements.

Wages: The starting grade is normally GS-7. Trainees are paid while learning their jobs. The highest grade for a nonsupervisory professional air traffic control specialist in the tower is GS-14.

Opportunities for Advancement: Promotion from trainee to a higher grade professional controller depends upon the employee's performance and satisfactory progression in his or her training program. Trainees who do not successfully complete their training courses are separated or reassigned from their controller positions. Increases in grade (with accompanying increases in salary) for successful trainees are fairly rapid, but grades above GS-14 are for positions of team supervisor, assistant chief, staff officer and chief. During the first year, the trainee is on probation and then she or he may advance from positions backing up professional controllers to primary positions of responsibility. It takes a controller from three to six years of experience to reach the full performance level. Some professional controllers are selected for research activities with FAA's National Aviation Facilities Experimental Center in Atlantic City, New Jersey. Some are also selected to serve as instructors at the FAA Academy in Oklahoma City, Oklahoma.

Opportunities for Training: Trainees receive 16 weeks of instruction at the FAA Academy in Oklahoma City, Oklahoma. After completion of the training period, they are assigned to developmental positions for on-the-job training under close supervision until successful completion of training.

However, those who fail to complete training are separated or reassigned from their controller positions. The FAA conducts upgrading training programs for controllers continuously. Training in air traffic control continues long after the controller reaches the full performance level.

Outlook For The Future: In line with predictions for continued growth of all sectors of aviation, the need for air traffic controllers will continue to rise. More airports will have the required amount of air traffic to qualify for air traffic control towers and additional tower controllers will be needed to staff them. An increased emphasis on providing the maximum amount of safety devices will result in continued stringent requirements for controllers.

Air Traffic Control Specialist at FAA Air Route
Traffic Control Center

Nature of the Work: The air traffic control specialists at FAA air route traffic control centers give pilots instructions, air traffic clearances, and advice regarding flight conditions along the flight path, while the pilot is flying the federal airways or operating into airports without towers. The controllers use flight plans and keep track of progress of all instrument flights within the center's airspace. She or he transfers control of aircraft on instrument flights to the controller in the adjacent center when the aircraft enters that center's airspace. The controllers also receive control of flights entering his or her area of responsibility from adjacent centers. She or he monitors the time of each aircraft's arrival over navigation fixes and maintains records of flights under his or her control.

Working Conditions: Air route controllers work at FAA air route traffic control centers forty hours a week, using electronic computers, radio, radar, telephones, and other electronic communications devices. Shift work is necessary. They work in semi-darkness, and unlike the tower controllers, never see the aircraft they control except as "targets" on the radarscope. In most areas, work is demanding. Registration numbers on all aircraft under control as well as types, speeds, and altitudes are automatically displayed on the radarscope, but each aircraft must be closely controlled to avoid other aircraft.

Where the Jobs Are: FAA employs about 11,000 controllers at 21 air route traffic control centers located throughout the nation and Guam, Panama and Puerto Rico.

Wages: The starting grade is normally GS-7. Trainees are paid while learning their jobs. The highest grade for an operating professional air traffic control specialist at a center is GS-14.

Opportunities for Advancement: Promotion to higher grades and to professional controller depends upon the employee's performance and satisfactory achievement in his or her training program. Increases in grade (with accompanying increases in salary) for successful trainees are fairly rapid, but grades above GS-14 are for positions of team supervisor, assistant chief, staff officer and chief. During the first year, the trainee is on probation and then he or she may advance from positions backing up professional controllers to primary positions of responsibility. It takes a controller from three to about six years of experience to reach the professional level. Appointment or movement to a position as air traffic control data systems computer specialist is possible. Professional controllers are also selected for research activities with FAA's National Aviation Facilities Experimental Center at Atlantic City, New Jersey. Some are also selected to serve as instructors at the FAA Academy in Oklahoma City, Oklahoma.

Opportunities for Training: Trainees receive 14 weeks of instruction at the FAA Academy in Oklahoma City, Oklahoma. After completion of the training period they are assigned to developmental positions for on-the-job training under close supervision until successful completion of training. However, those who fail to complete training are separated or re-assigned from their controller positions. The FAA conducts upgrading training programs for controllers continuously. Training in air traffic control continues long after the controller reaches the full performance level.

Outlook for the Future: In line with predictions for continued growth of all sections of aviation, the need for air traffic controllers will continue to rise. As airports generate greater volumes of air traffic and as emphasis on providing the maximum amount of safety grows, there will be a continuing requirement for additional controllers at air route traffic control centers. However, automation has offset the increase in workload, and this will affect the number of controllers needed at the centers.

Air Traffic Control Specialists at FAA Flight Service Stations

Nature of the Work: The air traffic control specialists at FAA flight service stations render pre-flight, in-flight and emergency assistance to all pilots on request. They give information about actual weather conditions and forecasts for airports and flight paths; relay air traffic control instructions between controllers and pilots; assist pilots in emergency situations; and initiate searches for missing or overdue aircraft.

Working Conditions: Shift work is necessary. They use a telephone, radio and teletypewriter, direction finding and radar equipment. They work in office situations close to communications equipment for forty hours as a normal work-week.

Where the Jobs Are: FAA flight service stations are found at nearly 300 airport locations throughout the United States, Virgin Islands and Puerto Rico. About 4,500 flight service specialists are employed.

Wages: The starting grade is normally GS-7. Trainees are paid while learning their jobs. The highest grade for the flight service specialist is GS-11.

Opportunities for Training: Trainees receive 15 weeks of instruction at the FAA Academy in Oklahoma City, Oklahoma. After completion of the training period, they are assigned to developmental positions for on-the-job training under close supervision until successful completion of training. However, those who fail to complete training are separated or reassigned from their positions. The FAA conducts upgrading training programs for specialists continuously. Training in air traffic control continues long after the specialist reaches the full performance level.

Opportunities for Advancement: Excellent opportunities exist for the employee who successfully progresses in his or her training to attain higher grade levels as she or he gains experience and as the responsibilities and the complexity of duties increases. Beginning as a trainee in the flight service station, he or she may advance to an assistant chief, and then to deputy chief or chief of the facility. As a further upward step, a few positions at higher grade levels are available in FAA regional offices with administrative responsibilities over all flight service stations within the area's jurisdiction.

Outlook For the Future: The number of specialists at flight service stations is not expected to increase as are jobs in other areas of air traffic control employment. Flight service stations will serve larger areas with the greater use of long distance telephone and other communications devices. Even though the number of opportunities for jobs for these specialists is not expected to increase greatly, these jobs will be more challenging as automation is introduced and they will be stepping stones to air traffic controller careers in FAA-operated airport traffic control towers and at air route traffic control centers.

ELECTRONIC TECHNICIAN (FAA)

Nature of the Work: The electronic technician (FAA) installs and maintains electronic equipment required for aerial navigation, communications between aircraft and ground services, and control of aircraft movements to assure safety in the air and smoothly flowing air traffic. This involves work with radar, radio, computers, wire communications systems, and other electronic devices at airports and along the network of federal airways. It includes preventive maintenance (inspection of equipment,

meter reading, replacement of deteriorating parts, adjustments) and corrective maintenance (trouble-shooting, repair and replacement of malfunctioning equipment). Electronic technicians may also specialize in design, development, and evaluation of new types of electronic equipment for the federal airways.

Working Conditions: They usually work out of an Airway Facilities Sector Field Office with other technicians whose work is directed by a supervisor. The office is frequently located at an airport and the equipment for which the office is responsible is within a 30 or 40 mile radius of the airport -- in control towers, air route traffic control centers, flight service stations, or in open fields and even on remote mountain tops. Some of the work must be performed outdoors in all kinds of weather. Forty hours comprise a regular work week, with shift work and weekend work rotated.

Where the Jobs Are: The Federal Aviation Administration employs thousands of electronic technicians. Most electronic technicians work in field offices or "sectors" scattered all over the country. Some work is located at the FAA's National Aviation Facilities Experimental Center which is engaged in electronic research and development projects.

Wages: The entrance level starts at GS-5.

Opportunities for Advancement: The employee has opportunities to progress to higher grade levels depending upon the complexity of her or his duties, the degree of supervision received or exercised, and the growing knowledge and skills used in the performance of the work. Supervisory positions are available at sector, area, and regional offices. Promotion to managerial jobs at FAA Headquarters is possible.

Requirements To Enter The Job: Age eighteen is the minimum age. Experience and education or training in electronics (a knowledge of basic electronic theory and related mathematics, transmitters and receivers, use of test equipment, techniques of troubleshooting and circuitry analysis, use of tools, and installation practices) are required. The greater the degree of education and/or experience, the higher the entrance level. Applicants must have had a minimum experience of the kinds and amounts indicated in the table below for each grade. Excess "specialized" experience may be credited as "general" experience. Some types of civilian or military education, related to the option for which application is made, may be substituted for the specialized experience requirement.

<u>Grade</u>	<u>General Experience (Years)</u>	<u>Specialized Experience (Years)</u>	<u>Total Experience (Years)</u>
GS-5	3	0	3
GS-6	3	$\frac{1}{2}$	$3\frac{1}{2}$
GS-7	3	1	4
GS-8	3	$1\frac{1}{2}$	$4\frac{1}{2}$
GS-9	3	2	5
GS-11 & 12	3	3	6

In addition, the applicants must show an ability to work without supervision and to write reports. They must be able to pass a physical examination and be free from color blindness. A technician may, in connection with the performance of regular duties, be required to drive a Government-owned automobile or truck.

Opportunities for Training: Basic training is available at technical and vocational schools offering courses in electronics. Upon assignment to an FAA sector office, the new employees undergo a short period of on-the-job training to familiarize them with FAA equipment and procedures and then may receive several months of training at the FAA Academy in Oklahoma City. The Academy offers correspondence courses to support technical training efforts, and many of these correspondence courses are prerequisites to assignment for advanced courses at the Academy. The technician receives regular salary and a subsistence allowance while in training at the Academy. Basic training and experience for FAA employment may also be obtained during active duty in the military services.

ELECTRONIC TECHNICIAN (AIRSPACE SYSTEM INSPECTION) (FAA)

Technicians appointed for airborne technical/electronics duty are required to fly in government aircraft as a member of a crew with Airspace System Inspection Pilots for data collection, evaluation and/or engineering purposes during the inflight inspection of navigational aids. Applicants should indicate on their applications their willingness to fly. Basically, the requirements and salary scales are the same as for the Electronic Technician.

AVIATION SAFETY INSPECTOR (FAA) (GS-5/15)

Aviation Safety Inspectors (Operations)
Aviation Safety Inspectors (Airworthiness)
Aviation Safety Inspectors (Manufacturing)

Aviation safety inspectors develop, administer, and enforce regulations and standards concerning civil aviation safety, including (1) the airworthiness of aircraft and aircraft systems, (2) the competence of pilots, mechanics, and other airmen personnel, and (3) safety aspects of aviation

facilities, equipment and procedures. These positions require knowledge and skill in the operation, maintenance or manufacture of aircraft and aircraft systems.

Requirements to Enter These Jobs: Candidates must have had experience as described below. (Education may be substituted for general experience.)

<u>Grade</u>	<u>General Experience (Years)</u>	<u>Specialized Experience (Years)</u>	<u>Total Experience (Years)</u>
GS-5	3	0	3
GS-7	3	1	4
GS-9	3	2	5
GS-11/15	3	3	6

General Experience: General experience is that which has provided familiarity with aircraft operation or the aviation industry. The following are examples of qualifying general experience:

- Pilot or crew member in civil or military aviation
- Civilian or military air traffic controller
- Aviation mechanic or repairperson
- Avionics or electronics technician
- Skilled machinist, assembly person, or inspector in production of aircraft, aircraft parts, or avionics equipment

Substitution of Education: For all positions in this series, successful completion of post-high school education in related fields such as engineering, aeronautics, or air transportation may be substituted for the required general experience. Education may be substituted at the rate of one academic year of full time study for nine months of general experience, up to the maximum of three years of general experience.

Specialized Experience: Specialized experience is that which has provided knowledges and skills for work in the specialty field -- operations, airworthiness, or manufacturing. In addition, specialized experience must have provided a broad knowledge of the aviation industry, the general principles of aviation safety, and the Federal laws, regulations and policies regulating aviation. Examples of qualifying specialized experience are described under the appropriate specialty area.

Level of Experience: Candidates for positions at grades GS-11 and below must have had at least six months of specialized experience at a level of difficulty and responsibility comparable to that of the next lower grade in the Federal service, or one year equivalent to the second lower grade. Candidates for grades GS-12 and above must have had at least one year of specialized experience of difficulty and responsibility comparable to that of the next lower grade.

For any grade, the required amount of experience and education will not in itself be accepted as proof of qualification for a position. The candidate's total record of experience and education must demonstrate that he or she possesses the ability to perform the duties of the position.

Physical Requirements: Candidates must be physically able to perform efficiently the duties of the position. They must have good distant vision in each eye and be able to read without strain printed material the size of typewritten characters, glasses permitted. Ability to hear the conversational voice with or without a hearing aid is required. Any physical condition which would cause the applicant to be a hazard to himself or herself or others or which would interfere with her or his ability to fly as a passenger in a variety of airplanes will disqualify he or she for appointment. In addition, candidates for positions that require participation in the operation of aircraft must possess a currently valid first-class medical certificate in accordance with the regulations of the FAA. Incumbents of these positions must pass re-current medical examinations as may be prescribed by the FAA.

Basis of Rating: No written examination is required. Candidates will be rated on a scale of 100, on the extent and quality of their experience and training. Ratings will be based upon candidates statements in their applications and upon additional information that may be obtained by the Office of Personnel Management. For positions that involve specialization in flight operations, the nature, amount and recency of flight time as a pilot or flight instructor will be given substantial weight in ranking candidates.

Interview: Before appointment, candidates may be required to appear for an interview. The purpose is to observe and evaluate certain personal characteristics to determine whether candidates possess the following essential qualities:

- Ability to express ideas logically and accurately and to speak effectively and convincingly.
- Ability to operate successfully and easily in group situations.

Candidates should be evaluated on the basis of the extent to which their experience and training provided knowledges and skills necessary for positions for which they are being considered. The following are elements of aviation safety positions that the candidates' background should have provided:

- Broad knowledge of specialization
- Independence and responsibility
- Skill in evaluation and fact-finding
- Ability to advise and guide others
- Skill in reading comprehension and report writing

Selective Placement: For positions that require particular knowledges and skills, consideration may be restricted to those candidates whose background indicate that they possess those knowledges and skills. For example, Aviation Safety Inspector (Operations) positions may require ability to operate a specific type of jet aircraft or helicopter in which case consideration may be restricted to candidates who have ratings in that type of aircraft. Another example, positions that primarily require knowledge and skill in maintenance of avionics equipment may be restricted to candidates whose backgrounds demonstrate knowledges and skill in the avionics area. Alternatively, separate registers may be established for eligibles with avionics expertise.

Working Conditions: The jobs require considerable travel, as inspections, consultations and investigations must be made at various facilities and locations or at the scenes of accidents. Forty hours constitutes a normal work week. Change of assignment from one duty station to another is required as staffing demands.

Where The Jobs Are: Inspectors operate out of Air Carrier District Offices, General Aviation District Offices and Flight Standards District Offices. These are located throughout the country. Five International Field Offices have the same functions as the FSDOs.

Opportunities for Advancement: Outstanding inspectors may be promoted to the next higher level with increased responsibilities and salary. An inspector demonstrating managerial ability may become a section or branch chief. She or he may also become an instructor at the FAA Academy.

Outlook For The Future: In line with predictions for continued growth of all sectors of aviation, the need for aviation safety inspectors will continue to rise.

Aviation Safety Inspectors (Operations)

Nature of the Work: Persons appointed to these positions apply knowledges and skills acquired as airmen (pilots, navigators, flight instructors, etc.) to develop and administer the regulations and safety standards pertaining to the operation of aircraft. Their primary duties include: (1) examining airmen for initial certification and continuing competence; (2) evaluating airmen training programs, equipment and facilities; and (3) evaluating the operations aspect of programs of air carriers and other commercial aviation operations.

Requirements To Enter The Job: Examples of qualifying specialized experience are:

- (1) Pilot (or co-pilot) experience that provided comprehensive knowledge of operations requirements, facilities, practices, procedures and flight activities of scheduled or supplemental air carriers, commercial operators, executive operators, air taxis, air travel clubs, or other civilian or military activities.

- (2) Flight instructor in civilian or military training school.
- (3) Flight test pilot or flight inspector involved in enforcing regulations concerning the safe operation of aircraft.
- (4) Aviation operations inspector.

For those positions in which the duties involve primarily developing aircraft navigators, the experience requirements given for navigator will be used in place of this standard.

Certificates and Ratings:

- (1) Operations - general aviation: Candidates for positions that require flight operation of aircraft in the general aviation field must hold a current Commercial Pilot Certificate with single and multi-engine land and instrument ratings, and hold a current Flight Instructor Certificate with airplane single and multi-engine and instrument ratings.
- (2) Operations - air carrier: Candidates for positions that require flight operation of aircraft in the air carrier field must hold a current Airline Transport Pilot Certificate or hold a current Commercial Pilot Certificate with multi-engine land and instrument ratings, and be eligible for an Airline Transport Pilot Certificate.

Opportunities for Training: Flight training may be obtained in the military service or at private or university operated flight schools for commercial pilot's license and for multi-engine and instrument ratings. From time to time, retraining is required as new developments in aircraft engines and equipment appear.

Aviation Safety Inspectors (Airworthiness)

Nature of the Work: Persons appointed to these positions apply knowledge and skills acquired as repair persons of aircraft and aircraft parts or avionics equipment to develop and administer regulations and safety standards pertaining to the airworthiness and maintenance of aircraft and related systems. Their primary duties include: (1) evaluating mechanics and repair facilities for initial certification and continuing adequacy, (2) evaluating mechanics training programs, (3) inspecting aircraft and related systems for airworthiness, and (4) evaluating the maintenance aspects of programs of air carriers and other commercial operators including the adequacy of maintenance facilities, equipment and procedures, the competence of personnel, the adequacy of the program or schedule for periodic maintenance and overhauls, and the airworthiness of aircraft.

Requirements to Enter the Job: Examples of qualifying experience are:

- (1) Experience involving technical supervision or management of the maintenance and repair of aircraft, aircraft engines, or aircraft electronics communication and navigation systems and equipment of aircraft with responsibility for airworthiness following federal aviation or military regulations and safety standards. This experience must demonstrate a broad and comprehensive knowledge of maintenance of aircraft or aircraft systems. It must also demonstrate an ability to gain cooperation at management levels in complying with and supporting proper maintenance standards.
- (2) Aviation safety inspector or air safety investigator concerned with aircraft powerplants, structures or systems.
- (3) Experience gained as a field service representative of a manufacturer of aircraft systems and equipment may be accepted up to a maximum of one year.

Certificates and Ratings: Candidates for position at GS-9 and above that require knowledge and skill in the maintenance of aircraft (except positions that involve primarily avionics equipment) must hold an FAA Mechanic Certificate with airframe and powerplant ratings.

Opportunities for Training: Basic training as an aircraft mechanic or in electronics and communications systems repair in a technical or vocational school is a starting point. College level work in aeronautical engineering or aeronautical maintenance or electrical or electronic engineering is preferred. From time to time, retraining is required as new developments in aircraft, engines and equipment appear.

Aviation Safety Inspectors (Manufacturing)

Nature of the Work: Persons appointed to these positions apply primarily knowledges and skills pertaining to the design and production of aircraft, aircraft parts, and avionics equipment to develop and administer regulations and safety standards pertaining to the original airworthiness of aircraft, aircraft parts and avionics equipment. Their primary duties include: (1) inspecting prototype or modified aircraft, aircraft parts, and avionics equipment for conformity with design specifications; (2) inspecting production operations including equipment, facilities, techniques and quality control programs for capability to produce the aircraft or parts in conformance with design specifications and safety standards; and (3) making original airworthiness determinations and issuing certificates for all civil aircraft including modified, import, export, military surplus, and amateur-built aircraft.

Requirements to Enter The Job: Examples of qualifying specialized experience are:

- (1) Experience involving quality control of the manufacture of aircraft, aircraft engines, propellers, or major aircraft assemblies produced under the requirements of federal aviation regulations.
- (2) For grades GS-11 and above, this experience must have demonstrated the ability to evaluate and provide technical guidance and direction to the quality control program of a manufacturer producing aircraft, aircraft engines, propellers, or major aircraft assemblies. This experience may have been acquired in such positions as quality control engineer, quality control supervisor, or service representative with quality control supervisory experience.

Opportunities for Training: A college degree in aeronautical, production or industrial engineering is the best preparation for entry into jobs at higher levels. Technical or vocational school training in various trades associated with aircraft manufacturing (drafting, sheet metal work, air conditioning, electrical systems, etc.) leading to jobs in aircraft manufacturing can give minimum background and experience. From time to time, retraining is required as new developments in aircraft, engines and equipment appear.

AIRSPACE SYSTEM INSPECTION PILOT (FAA)

Nature of the Work: The airspace system inspection pilots conduct in-flight inspections of ground-based air navigational facilities to determine if they are operating correctly. They pilot multi-engine high performance jet aircraft with specially installed ultrasophisticated, computerized, and automated electronic equipment to serve as a flying electronic laboratory on day and night flights, both visual and instrument flight rules, recording and analyzing facility performance, and reporting potential hazards to air navigation for correction. The pilot assists in accident investigations by making special flight tests of any FAA navigational aids involved. He or she maintains liaison with aviation interests regarding the installation, operation and use of air navigation facilities, but is mostly involved with the FAA people who maintain the nav aids.

Working Conditions: The job requires considerable travel, as flights cover navigation aids supporting federal airways and civil and military airports which are located geographically throughout the entire United States. The basic work-week consists of forty hours.

Where the Jobs Are: She or he works out of one of seven Flight Inspection Field Offices within the conterminous 48 United States. Upon reaching the journeyman level of proficiency one could, at his or her option, bid on a job in one of the flight inspection offices in Alaska, Hawaii, Tokyo or Germany.

Wages: The entry level is GS-9.

Opportunities for Advancement: An employee enters as a trainee, then advances to the job of second-pilot on an in-flight inspection or at air navigation facilities. The next step is that of supervisory airplane pilot who supervises the flight inspection crew and evaluates the report findings on navigation systems. The top jobs, located in field offices, are those of supervisors responsible for the overall program accomplishment of the field offices. If assigned to a Flight Inspection Field Office, the employee can advance through second-pilot to airspace and procedures specialist responsible for developing instrument approach, terminal and en route air traffic procedures or he or she may move up to become senior flight inspector and aircraft commander, supervising flight crews and results of inspection missions. Managers of the field offices are the top jobs.

Requirements to Enter The Job: Experience as a pilot in general, air carrier or military aviation is required. Experience requirements are specified in terms of flying time, certificates and ratings, rather than in number of years of experience. As a minimum, she or he must hold a valid commercial pilot certificate with multi-engine rating and instrument ratings.

	<u>Total Time</u>	<u>Pilot-In Command</u>	<u>Multi- Engine</u>	<u>Instrument Night</u>	<u>Last 12 Months</u>
GS-9	1200	250	100	100	100
GS-11	1500	250	500	150	100

Flying time in any category may be as pilot or co-pilot, except for the pilot-in-command hours specifically required. The instrument/night requirement must include at least 40 hours of actual instrument weather time. Experience as an air traffic controller, chief test pilot, chief pilot of an FAA certificated flight school or designated pilot examiner may be substituted for not more than 50 hours of the flying time required for the last 12 months. The pilot must have a valid first-class FAA medical certificate and must requalify periodically in physical examinations to maintain employment in this job.

Opportunities for Training: Flight instruction may be obtained from private or university-operated flight schools or from the military services.

FLIGHT TEST PILOT (FAA)

Nature of the Work: The flight test pilot (FAA) checks the airworthiness of aircraft through inspection, flight testing, and evaluations of flight performance, engine operation and flight characteristics of either prototype aircraft or modifications of production aircraft and aircraft components

that are presented for FAA-type certification. The flight test pilot supervises FAA-designated flight-test representatives and participates in investigations of accidents and violations of the Federal Air Regulations.

Working Conditions: This employee flies new types of aircraft under all kinds of conditions to test their performance. Considerable travel is required and his or her duty station may be changed from time to time as circumstances require.

Where The Jobs Are: The jobs are located in areas where aircraft manufacturing plants are situated. They are chiefly in California, Washington, Missouri, Maryland, Texas, Kansas, Florida and New York.

Wages: The entry level is GS-9. Entrance salary will vary with the degree of the applicant's experience and training.

Opportunities for Advancement: The flight test pilot may progress to branch chief positions in the engineering or manufacturing areas. An administrative post with respect to all FAA flight test pilots at FAA Headquarters or perhaps an assignment with the National Aviation Facilities Experimental Center (the research and development arm of FAA) may provide opportunities for an administrative flight test engineering job.

Requirements For The Job: Three years of general experience as a pilot or co-pilot in any civilian or military major aircraft operation is required. Also required is one to three years of special experience in the aircraft manufacturing industry or in the military or civil service of the Federal Government as a flight test pilot, aeronautical engineer or flight test engineer. The special experience must include engineering flight testing of experimental types of aircraft or the solution of technical engineering problems at a professional level. The pilot must have experience in obtaining and evaluating flight data related to flight performance, flight characteristics, engine operation, and other performance details of the prototype or modifications of production aircraft. Experience as an instructor in engineering flight testing of aircraft is also required. The higher entry grades require completion of a flight test pilot course, such as a military flight test school or the FAA flight test pilot course. College study in aeronautical, electrical, electronic or mechanical engineering, mathematics or physics may be substituted for some of the general experience requirements. He or she must have a first class FAA medical certificate plus 1,500 to 2,000 hours of flight time, a commercial pilot license, and single engine, multi-engine and instrument ratings. She or he must pass physical exams at regular intervals to retain the job.

Opportunities for Training: Flight training with advanced training at a military flight test school may be obtained in the military service. Flight training through commercial pilot's license with appropriate ratings may be obtained from private or school-connected flying schools and institutes. A college degree in aeronautical engineering with flight training is preferred.

MAINTENANCE MECHANIC (FAA)

Nature of the Work: There are a number of employees classified under the Federal Wage System schedule. These employees perform jobs associated with the trades and crafts and are paid on an hourly basis. One example is the maintenance mechanic (FAA). They maintain aids to air navigation such as the approach light systems serving airport runways. They also work on the structural, electrical, and mechanical devices that are major parts of other facilities. This includes maintenance and repair of heating, air conditioning and ventilating systems; electrical generating and power distribution systems; and the buildings and antenna structures that house a wide variety of FAA facilities. The job involves carpentry, painting, plumbing, electrical, and masonry construction, and installation, repair and maintenance of air conditioning, heating or power-generating equipment.

Working Conditions: Work is indoors or outdoors as the jobs require. Work may be on outdoor structures of heights up to 300 feet. The basic work week consists of forty hours. The employee must be able to drive a truck to jobs in outlying areas.

Where The Jobs Are: Such jobs are located in all areas of the U.S., Puerto Rico, the Virgin Islands, and anywhere that FAA air navigational aids and air traffic control towers and centers are situated.

Wages: Hourly wages vary according to experience and the prevailing rates paid where the jobs are located.

Requirements To Enter The Job: The employee must have four years of progressively responsible experience in two or more of the following occupational groups: machinist, machine repair person, automobile mechanic, carpenter, woodworker, electrician, electric motor repair person, painter, air conditioning and refrigeration repair person, heating equipment, and power generating repair person. Training in a trade school may be substituted for some of the required experience. Candidate must have a driver's license.

Opportunities For Training: Training can be acquired in high school industrial arts classes and in vocational or technical schools.

ENGINEER

General Information: The FAA, as well as the National Aeronautics and Space Administration and the Department of Defense, employs engineers of all specialties to work on research and development problems in aviation, such as V/STOL (very short takeoff and landing) aircraft, aircraft sound, the sonic boom, hypersonic aircraft, and new equipment and devices to increase aviation safety. Engineers also provide guidance in airport design, construction, operation and maintenance.

Nature of the Work: The facilities, devices and machines needed by the Federal Aviation Administration to carry on its work require the services of a number of engineering specialists:

- (1) The Aerospace (Aeronautical) Engineers develop, interpret, and administer safety regulations relating to airworthiness of aircraft and their accessories. They analyze and evaluate manufacturers' designs, set up test procedures, observe tests, and furnish engineering advice to manufacturers. They deal with such problems as vibration, flutter, stability, control, weight and balance, aerodynamic characteristics, etc.
- (2) The Electrical Engineers deal with power supply, distribution and standby power generation required for the operation of air navigational aids. They are also involved in the design and evaluation of airport and runway lighting and electrical equipment aboard aircraft.
- (3) The Electronic Engineers are concerned with designing improved electronic navigational aids and communications systems. They may design, develop, modify, or oversee installation, calibration and maintenance of ground and airborne electronic equipment. They recommend locations of aids.
- (4) The Mechanical Engineers are concerned with the design of gasoline and diesel power plants for standby power generation in case of emergencies. They are also concerned with heating, ventilating, and air conditioning equipment at FAA installations. Some mechanical engineers check out such things as the performance of new types of aircraft engines, fuel systems, and fire detection devices.
- (5) The Civil Engineer involved in the airports program deals with a broad range of airport design, construction, and maintenance matters. FAA involvement in these matters is in the area of providing advice and guidance to civil airport developers with particular emphasis on airports developed with Federal grants-in-aid.

Working Conditions: The engineer works at a desk in an engineering laboratory or outdoors conducting or observing tests of equipment during a forty-hour week. Travel may be required as the engineer consults with aircraft and engine manufacturers and with suppliers of all kinds of equipment related to the engineering speciality. Engineers may travel to consult with state and city officials who need Federal funds for building or improving airports and to military bases where equipment is tested.

Where The Jobs Are: Engineering jobs are located at FAA Headquarters, district, and regional offices, at NASA Headquarters and centers, and at certain military bases scattered throughout the nation.

Wages: GS-5 to GS-14 are beginning salaries, depending upon previous experience and educational background.

Opportunities for Advancement: Promotion is normally from within.

Requirements For The Job: A B.S. degree in engineering is required, or four years of technical engineering experience and training that provides technical knowledge equal to that possessed by a graduate engineer. None to three additional years of experience are required depending upon entry grade level.

Opportunities For Training: Engineering training may be obtained from colleges offering courses in the specialized engineering field.

ENGINEERING AID OR TECHNICIAN

Nature of the work: Depending upon the specialty, the engineering aid or technician assists engineers by drafting engineering plans, conducting efficiency and performance tests, making calculations, setting up laboratory equipment and instruments, and preparing technical reports, specifications and estimates.

Working Conditions: The basic work-week is forty hours. Travel may be required as the technician consults with aircraft and engine manufacturers and with suppliers of all kinds of equipment related to her or his engineering specialty. He or she may travel to consult with state and city officials who need Federal funds for building or improving airports and to military bases where equipment is tested.

Where The Jobs Are: The jobs are located at FAA facilities and at FAA's National Aviation Facilities Experimental Center at Atlantic City, New Jersey, at NASA Headquarters and centers, and at certain military bases scattered throughout the nation.

Wages: The starting salaries for engineering aids are GS-1 to GS-3 and for engineering technicians GS-4 to GS-12, depending upon previous experience and educational background.

Requirements To Enter The Job:

<u>Grade</u>	<u>General Experience (Years)</u>	<u>Specialized Experience (Years)</u>	<u>Total Experience (Years)</u>
GS-1	0	0	0
GS-2	1/2	0	1/2
GS-3	1	0	1
GS-4	1 1/2	1/2	2
GS-5	2	1	3
GS-6	2	2	4
GS-7	2	3	5
GS-8 & Above	2	4	6

Engineering technicians may be certified by the Institute for Certification of Engineering Technicians, an organization sponsored by the National Society of Professional Engineers. They may be certified as Junior Engineering Technician, Engineering Technician, or Senior Engineering Technician.

Opportunities for Training

The technician or aid may study his or her specialty at a vocational or technical school, junior/community college, or a four-year college.

OTHER PROFESSIONAL EMPLOYEES (FAA)

The FAA also requires the services of professional people other than engineers. Aviation medicine is a most important function and physicians who have chosen aviation medicine as a specialty beyond their general medical education are employed by the FAA in limited numbers. These physicians study such things as the effects of flying on the human body, the need for oxygen above certain altitudes, the effects of fatigue on pilot performance, vision and hearing standards, the tension and stress factors associated with the air traffic controller's job, and the standards of the various classes of medical examinations required for pilots and other members of flight crews.

A wide scope of professionals are represented in FAA. These include airport safety specialists, urban planners, economists, mathematicians, statisticians, program officers, management analysts, and budget analysts.

The FAA requires logistic support for all its programs, particularly in the area of establishment, operation and maintenance of air navigation and traffic control facilities. Personnel plan and manage programs for the establishment and installation of facilities, acquire real and personal property needed to establish, operate and maintain facilities,

and provide all aspects of property and material management. To do so, FAA employs personnel such as logistics program planners and managers, real property specialists, inventory and supply managers, procurement analysts, contracting specialists, transportation officers, and purchasing clerks.

The FAA also employs lawyers to write Federal Aviation Regulations, to interpret them, and to represent the FAA in legal controversies. It employs many other kinds of workers found in business and industry such as accountants, public information officers, librarians, photographers, and supporting personnel such as receptionists, secretaries, typists, office machine operators, mail room clerks, and data computer programmers and operators. In addition, the FAA operates two Federal airports in the Washington, D. C., area and employs runway, building and ground maintenance personnel as well as an airport administrative staff.

NATIONAL TRANSPORTATION SAFETY BOARD (Department of Transportation)

The National Transportation Safety Board accident investigators interview survivors and witnesses and examine aircraft parts, instruments, and engines. They also review maintenance and flight records to determine the probable cause of airplane accidents.

CIVIL AERONAUTICS BOARD (CAB)

The Civil Aeronautics Board is another federal agency concerned with aviation, particularly commercial air transportation. It employs lawyers to develop regulations, to make decisions about airline routes and fares, and to represent the U.S. in some kinds of international airline legal discussions. The aviation lawyers receive a general law education, and after passing their bar examinations begin their special practice in aviation law. The CAB also employs economists and statisticians who gather and interpret statistics so decisions can be made about changes in airline fares, routes and services.

U.S. MILITARY SERVICES

The U.S. military services are large employers of civilians for jobs in aviation, such as aircraft mechanics, engineers, technicians, and general office workers such as secretaries and typists. These civilian jobs come under the Federal Civil Service and employees do many of the same kinds of work and receive the same wages and benefits as their counterparts in the FAA or other federal government departments and agencies.

There are many aviation career opportunities in the military services for enlisted personnel and officers, both men and women. The Air Force, of course, offers the greatest number of training and employment opportunities to fly as a pilot or to work as an aircraft mechanic, air traffic controller, electronic technician, flight nurse, or meteorological technician, to name a few. Navy and Marine aviation also have their counterpart jobs to those in the Air Force. Army aviation is mostly connected with operation and maintenance of helicopters and subsonic light planes and requires flight crews and ground service people and weather specialists to support its aerial operations. Many of these military aviation jobs fit the service man or woman for similar jobs in civilian life, if he or she chooses to leave the service. For example, flying officers released by the military services, especially the Air Force, have constituted the major source of supply of airline pilots in recent years. An Air Transport Association survey revealed that a high percentage of all airline pilots employed had had their principal training in the military service.

OTHER FEDERAL GOVERNMENT DEPARTMENTS AND AGENCIES

Many other federal government departments, bureaus and agencies operate aircraft to carry on their work more effectively. For example, the Fish and Wildlife Service of the Department of the Interior uses airplanes to make wildlife census; the Department of Agriculture's Forest Service uses aircraft to check on aerial forest spraying contracted to commercial operators or to oversee forest-fighting procedures; the Immigration and Naturalization Service of the Department of Justice uses aircraft to detect people entering the U.S. illegally; and the U.S. Coast Guard operates aircraft for search and rescue purposes. Although pilot and mechanic jobs within these agencies are comparatively few in number, they are mentioned to complete the full picture of aviation career opportunities within the Federal Civil Service.

Pilots for these federal government agencies fly aircraft to transport office staff members and supplies, perform aerial surveys, make wildlife census, etc. as required by their particular government office. They fly in single or multi-engine aircraft during day or night, as required, and over all kinds of terrain in all kinds of flyable weather.

The jobs are based throughout the country where ever the department operations require. Pilots must have from 1,200 to 2,500 flying hours experience, including extended cross-country flights over land and/or water during which they perform their own navigating. They must be able to pass a First Class or a Second Class FAA physical examination every six or twelve months, respectively. The annual salary ranges from GS-9 to GS-12, depending upon experience and educational background.

NATIONAL WEATHER SERVICE
METEOROLOGISTS AND METEOROLOGICAL TECHNICIANS

Aviation is one of the largest consumers of weather information. Flight and weather are so interrelated that many people in aviation look upon the weather person as a member of the aviation team. Thus, the meteorologist deserves at least some mention in any discussion of vocations in aviation, even though these functions are not, of course, entirely for the benefit of the aviation community.

Nature of the Work: In general, the meteorologist who works most closely with aviation is an operational, or synoptic, meteorologist (as contrasted to the meteorologist working in theoretical or applied meteorological research). He or she is the forecaster who provides the day-to-day, hour-to-hour observations, analyses, forecasts, warnings, and advice to pilots, airport operators and airlines. She or he reports weather conditions expected at airports, current conditions, and en route forecasts.

The meteorologist's main tasks involve the interpretation of meteorological data provided by weather observations and instruments. At a small weather station he or she may carry on numerous functions such as: making outside weather observations, reading and recording data from weather instruments, checking weather data coming in via a machine, drawing weather maps, plotting the weather, providing forecasts, and advising pilots and other interested parties. At larger stations, the meteorologist may specialize in one or more of these duties, relying to some extent upon computerized data in order to produce a forecast. She or he sends forecasts via teletype or telephone to Flight Service Stations, airline dispatch offices, airports, and to other consumers of weather information. Often the meteorologist advises pilots personally when assisting the pilot in drawing up a flight plan.

Working Conditions: The meteorologist works indoors, sitting or standing at map tables while working on weather maps and charts. He or she reads data from weather instruments such as anemometers, thermometers, barometers, theodolites, ceilometers, radiosondes, weather balloons, etc. The meteorologist is able to operate a teletypewriter. At times, she or he may be required to work outdoors for short periods, checking weather instruments and making observations. He or she may work alone at a small station or with other meteorologists and meteorological technicians at a large station. At airport Weather Service stations, he or she meets private, business, and airline pilots. Meteorologists usually work a forty-hour week. Overtime is required when weather conditions deteriorate. Shift work is required when a station is open 24 hours a day. They may be required to relocate to fill staffing requirements at another station or to advance in grade.

Where The Jobs Are: The largest employer of Federal Government meteorologists is the National Weather Service. Several thousand Weather Service meteorologists work at approximately 300 stations scattered throughout the 50 states, in Puerto Rico, in Arctic regions, at Wake Island, and at other Pacific Ocean sites. Major Weather Service Stations are located at airports or in large cities. A smaller number of Federal Government meteorologists work for the Air Force, Navy, Army, the FAA, NASA, and the U.S. Forest Service.

The Weather Service also employs meteorological technicians to assist meteorologists. Most of the job vacancies for this position are filled by applicants who have received their technical training during active duty in the Armed Forces. The meteorological technician performs semi-professional and scientific work, calibrating and using instruments for taking various kinds of measurements, observing, recording, computing, processing, classifying, and disseminating weather data.

Wages: The salary ranges from an annual starting grade of GS-5 to a GS-15. The starting salary is determined by the amount of education and experience.

Opportunities for Advancement: Promotion to higher grades depends upon education, ability, work performance, and upon openings in jobs at the higher grades. In-grade pay increases are made on the basis of experience and satisfactory performance of the job. With an increase in grade comes increased responsibilities as assistant chief or chief of a weather station or region. A few high administrative jobs are available as vacancies occur.

Requirements To Enter The Job: One of the following two is required:

- (1) A full course of study, leading to a bachelor's degree at an accredited college or university which has included or been supplemented by 20 semester hours in meteorology (including six semester hours in weather analysis and forecasting and six semester hours in dynamic meteorology), and in addition, differential and integral calculus and six semester hours in college physics.
- (2) At least 20 semester hours in meteorology at an accredited college or university which has included six semester hours in weather analysis and forecasting and six semester hours in dynamic meteorology. Also, differential and integral calculus and six semester hours in college physics, plus additional appropriate education or technical experience which when combined with the education prescribed above, will total four years of education or education and experience. This pre-professional background must be of such quality that it provides a body of knowledge and abilities comparable to that normally acquired through the successful completion of a full course of study described in paragraph one above.

Opportunities For Training: More than twenty universities offer bachelor degrees in meteorology or equivalent, with others offering a major in meteorology. Training as a meteorological technician is obtainable while on active duty with the armed services or at some junior/community colleges or technical institutions. The Weather Service operates a Technical Training Center in Kansas City for the purpose of upgrading technicians.

Outlook For The Future: The science of meteorology is expanding and with it increased occupational opportunities. The Weather Service expects to hire at least 100 meteorologists with a B.A. degree each year to fill new positions and vacancies. Opportunities for military careers in meteorology are excellent and competent military meteorologist officers are given opportunities to receive advance degrees at government expense. At present, the number of qualified students obtaining degrees in meteorology are fewer than can supply future expected demands. Although the demand is small, so few are entering the occupation that job opportunities are available for the qualified applicant.

STATE AVIATION JOBS

Almost every state has an Aeronautics Department or Commission that consists of a small number of aviation-minded men and women usually appointed by the Governor to make policies about aviation activities within the state. They are not considered employees, as they are paid only expenses connected with their attendance at meetings.

The Department of Aeronautics, however, employs some or all of the employees listed below.

Frequently, employees have dual responsibilities, especially when the staff is small. Qualifications and requirements for these various jobs are determined by state law; however, the top level employees (safety officers, field service representatives and engineers) must have experience and training in their specialty. Most all employees working under state civil service enjoy retirement plans, social security, low cost group insurance, and medical service. In most cases, Department employees work out of the office in the state capital.

"STATE AVIATION JOBS"

<u>NAME OF THE JOB</u>	<u>NATURE OF THE WORK</u>	<u>ANNUAL SALARY RANGE</u>
Director	Promotes aviation in the state, administers state aviation regulations, represents the state at regional meetings and directs the staff of the Department of Aeronautics.	\$16,500 - \$38,000
Deputy and Assistant Director	Assists the Director.	\$14,440 - \$28,500
Administrative Assistant	Handles the detailed routine operation of the Director's Office.	\$12,000 - \$18,500
Pilots	Fly state-owned aircraft as required, for example to take the Governor to meetings. (NOTE: Some Departments who do not employ pilots require the Director, his assistant or some other staff member to assume pilot duties, when necessary.)	\$15,000 - \$28,000
Field Service Representative	Is in direct contact with aviation interests within the state. May be called upon to explain proposed or new flying rules, help with aircraft sound problems or assist with an aviation education project.	\$12,000 - \$21,000
Accountants and Statisticians	Maintain financial records of the department and gather flight statistics about aircraft movements, registered pilots, accidents, hours flown, etc.	\$13,000 - \$21,000
Stenographers, Clerks and Typists	Carry on routine office duties.	\$ 6,000 - \$10,000
Engineers	Civil, electronics, radio and other engineering specialties involved in planning airports and improvements to airports, installing and supervising air navigational aids operated by the state.	\$16,000 - \$37,751

-27-

-Continued-

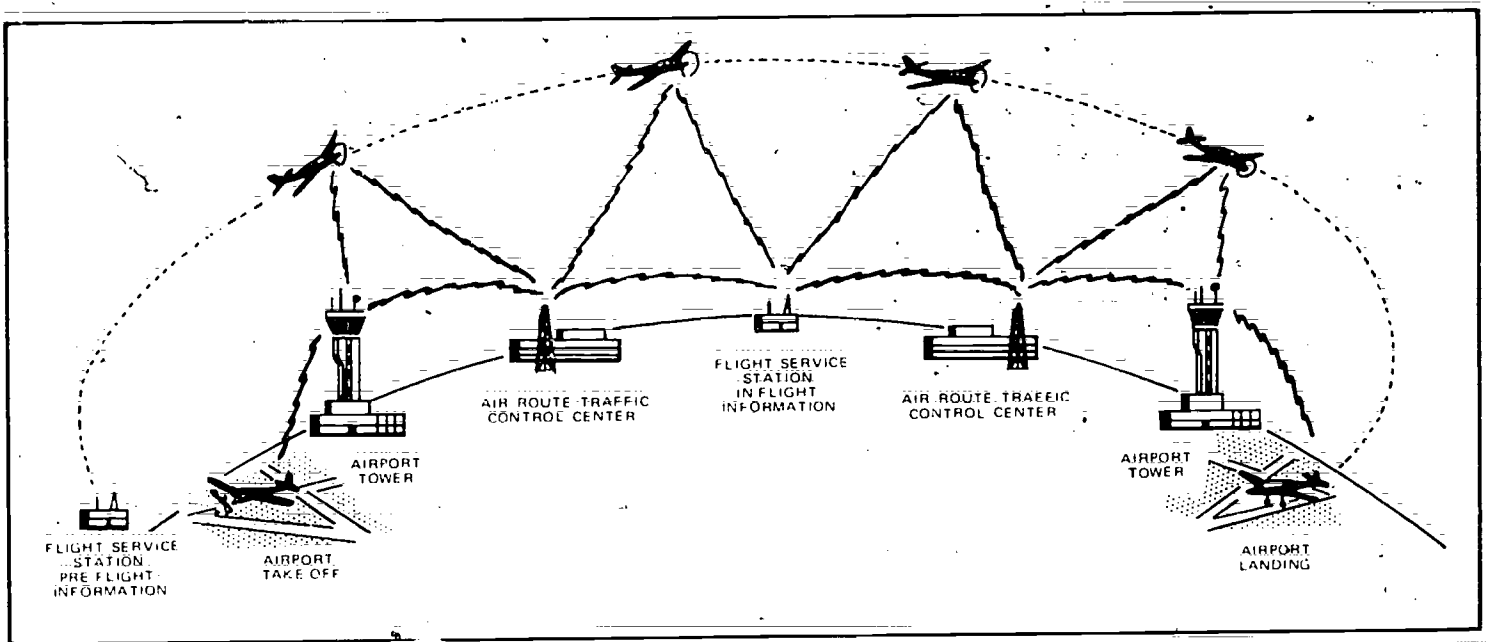
<u>NAME OF THE JOB</u>	<u>NATURE OF THE WORK</u>	<u>ANNUAL SALARY RANGE</u>
Chief Planner	Responsible for preparation of State's airport system plan and other planning activities.	\$15,000 - \$31,000
Engineer Technicians (Aides)	Assist engineers in their work (draftsperson, etc.)	\$ 9,000 - \$17,000
Aeronautical Inspectors	Check compliance with state aviation regulations.	\$10,000 - \$19,000
Aviation Education Officers	Carry out aviation education policies of the Department. Cooperate with schools in aerospace education programs.	\$12,000 - \$23,000
Publication Editors	Are responsible for publication of newsletters, releases, and other information of interest to pilots, airport operators and fixed base operators in the state.	\$12,000 - \$23,000
Safety Officers	Promote aviation safety, such as conducting weather seminars and other safety-type meetings for pilots.	\$12,000 - \$23,000
Aircraft Mechanics	Service and maintain state-owned aircraft.	\$12,000 - \$21,000
Surplus Property Officers	Search out surplus federal government property that might be useful to state aviation.	\$12,000 - \$23,000

OUTLOOK FOR AVIATION CAREER OPPORTUNITIES IN GOVERNMENT

The projected growth of air traffic increases the need for improved and accelerated aviation safety devices and practices. For example, with the growth of air traffic, additional cities will qualify for FAA-operated control towers and increased airport landing systems. This will require larger numbers of air traffic controllers and technicians to service and maintain additional equipment. The expected growth in the production of aircraft will call for increases in the number of safety inspectors, both at the production level and at airline overhaul bases and general aviation repair stations. The increasing number of general aviation pilots implies a larger number of safety officers dealing with flight instruction, flight schools, certification of air persons, and pilot proficiency. The expected increase in electronic devices aboard aircraft will demand more safety inspectors. It is reasonable to conclude that the outlook for all job categories in the Federal Aviation Administration (with its primary mission that of aviation safety) will be favorable over the next decade, and the requirements for pilots and for aircraft mechanics for other federal government agencies is expected to increase.

The future of civilian aviation careers with the military services is somewhat uncertain as demand is responsive to world conditions. The best predictions indicate at least a small increase over the next ten years.

Employment in aviation at the state government level is almost certain to show an upward trend as aviation activities within the state grow -- more airports, enlargements of existing airports, more air traffic, and greater numbers of pilots, etc.



Air traffic control towers, centers, and flight service stations assist pilots from flight planning to takeoff to landing.

Department of Transportation
Federal Aviation Administration
FAA REGIONAL BOUNDARIES
Including Locations of Regional Headquarters & Centers

